DEFENSE CONTRACT MANAGEMENT COMMAND

SPACE BROAD AREA REVIEW

ACTION PLAN

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I. EXECUTIVE SUMMARY

The Space Broad Area Review (BAR) report Fly-Out recommendation number seven, required the "Air Force request DCMC increase in-plant technical support." Our initial focus was on examining our engineering and quality assurance support on the Fly-Out programs and the Evolved Expendable Launch Vehicle (EELV) programs at DCMC Boeing Huntington Beach and DCMC Lockheed Martin Astronautics Denver. The DCMC analysis of pre-BAR and post-BAR DCMC insight was constructed using a Work Breakdown Structure (WBS) Space System and Common Element hierarchy. This bottom-to-top approach produced a gap analysis indicating the necessity to allocate additional resources to properly handle the risk in Space System key processes. Many of these key processes are performed at major/critical subcontractors.

Actions Completed:

DCMC updated the Titan IV MOA, signed on 21 Sep 99. The MOA re-established 20 mandatory product audit points and significantly increased product audit time. We also hosted a Titan Quality Summit, updated DCMC Quality Assurance policies and procedures on risk management, and reviewed Lockheed Martin and DCMC software surveillance and verified improvement actions were in place and working. Along with Lockheed Martin, DCMC participated in joint training that focused on process and reliability improvement, which was one of the BAR recommendations.

Actions Planned/Ongoing:

1. DCMC has taken immediate steps to re-balance technical resources on the fly-out-programs and to prepare for EELV. Estimated completion date is July 2000.

Key to Numbers: [Fly-Out] *(EELV)*	Huntington Beach		LM Denver	
	Existing	Additional	Existing	Additional
Quality Assurance	[8]	[1] *(2)*	[6] *(1)*	[4] *(1)*
Engineering	[2] *(1)*	[1] *(3)*	[9] *(5)*	[4] *(1)*
Industrial Specialist		[1]		

2. DCMC will extend our analysis of the engineering and quality assurance presence necessary to properly support all Space System and Satellite programs, to include the subcontract level. Estimated completion date is March 2000.

3. DCMC will add an additional four quality assurance personnel at DCMC Lockheed Martin Astronautics Denver in FY01. We are also working with the EELV Program Manager to finalize the extent and nature of support at Boeing locations in Pueblo, CO, and Decatur, to support the continuing transition to EELV.

II. BACKGROUND, SCOPE, AND METHODOLOGY

The BAR report issued in November 1999 contains a number of recommendations. Under "Fly-out programs, System Engineering and Engineering Review," one recommendation was "Air Force request DCMC increase in-plant technical support." The Air Force Office of the Assistant Secretary, Principal Deputy Assistant Secretary (Acquisition & Management), Ms. Darlene A. Druyun, solicited DCMC's response to the above recommendation, and its impact to the FY01 budget or manpower. The DCMC response encompassed an analysis of DCMC current and future resource needs at DCMC Boeing Huntington Beach and DCMC Lockheed Martin Astronautics Denver, given the post-BAR environment. The DCMC methodology in determining the necessary adjustments was accomplished using a MIL-HDBK-881 Work Breakdown Structure (WBS) hierarchy of Space Systems and Common Elements. The WBS enabled DCMC to define the necessary budget and resource actions required to project accurately an increase technical insight and support for space launch programs.

DCMC tasked DCMC Boeing Huntington Beach and DCMC Lockheed Martin Astronautics to evaluate engineering and quality assurance insight in a pre-BAR and post-BAR environment by aligning work activity to MIL-HDBK-881: DoD Handbook -- Work Breakdown Structure; 2 January 1998. Using Appendix F: Space Systems -- Work Breakdown Structure and Definitions, and Appendix H: Common Elements -- Work Breakdown Structure and Definitions, both DCMC activities mapped the allocation of resources to various space elements such as: propulsion, stages, shrouds/faring, guidance and control integration, assembly and test, etc. Other common elements were studied including quality planning, tooling and fabrication, inspection, systems engineering, producibility, software integration, etc. The DCMC evaluation included a risk assessment of the Fly-Out and the EELV programs.

Using this hierarchy model allowed us immediate insight into the areas where increased support was necessary, and what key components, systems, and processes needed attention. We intend to modify our risk management methods to address Space and Satellite acquisitions as critical (high consequence) programs, which will lead to no ratings of low risk on key components, systems, or processes, and therefore increased insight. Using this approach, DCMC Huntington Beach and DCMC Lockheed Martin Astronautics Denver determined the increased personnel needed in FYs00-02, as summarized below and in the attachment.

III. DCMC ACTIONS

DCMC has issued a directive to increase personnel at DCMC Huntington Beach and DCMC Lockheed Martin Astronautics Denver, in FY00, by a total of five engineers, five quality assurance, and one industrial specialist for the Fly-out programs.

We are also increasing our presence on the Evolved Expendable Launch Vehicle (EELV) by four engineers and three quality assurance personnel at the same locations in FY00, in order to handle the transition to EELV. At DCMC Lockheed Martin Astronautics Denver, we are adding an additional four quality assurance personnel in FY01.

By the 2QFY00, DCMC shall amend policy to include a specific engineering and quality assurance addenda relating to risk planning, assessment, handling and monitoring for Space and Satellite acquisitions. This new direction shall increase the degree of insight within this commodity sector. The policy will effect all Space and Satellite programs but more importantly will extend to the major/critical supplier base to the prime contractor. DCMC shall compile data on the Space and Satellite supplier base, including sub-tier locations.

In addition to the DCMC engineering and quality assurance recruitment actions underway to increase the insight on the Fly-Out and EELV programs, we intend to look closely at defining DCMC's presence at the Boeing sites in Pueblo, CO and Decatur, AL. As we progress in extending our policy to all suppliers, the necessary recruitment actions shall be taken.

DCMC is committed to supporting the program management needs in providing insight on performance, schedule and cost risk without impeding the progress of the contractors.

Additions to Current Workforce to Support

BAR, by FY

	FY 00	FY 01	FY02	TOTALS
HB DELTA				
GS 896-13	1			1
GS 1910-11 (Aero)	1			1
GS 1150-12	1			1
				3
HB EELV				
GS 896-12	1			1
GS 861-12	1			1
GS 801-12	1			1
GS 1910-11 (SW)	1			1
GS 1910-11 (Mech)	1			1
				5
PUEBLO EELV				
	TBD	TBD	TBD	TBD
DECATUR EELV				
	TBD	TBD	TBD	TBD
LM Titan II & IV				
GS 855-12	1			1
GS 861-13	1			1
GS 1910-12 (Aero)	1			1
GS 1910-11 (Aero)	1			1
				4
LM Atlas				
GS 861-13	1			1
GS 801-12	1			1
GS 1910-12 (Aero)	1			1
GS 1910-11 (Aero)	1			1
				4
LM EELV				
GS 861-13	1			1
GS 1910-11 (SW)	1			1
GS 1910-12 (Aero)		1		1
GS 1910-11(Aero)		3		3
				6

TAB A